

negligible. In 9 experiments, the Lipiodol was in contact with the bacterial growth and even in these cases, the inhibitory effect of the secondary rays was only slight. Control experiments with secondary rays from iodine crystals or iodine tincture were impossible, as the vapor itself from iodine and 10% iodine tincture, at a distance of 1 mm. killed the bacteria. Of 8 experiments with bismuth subnitrate paste (Beck's paste—33%), 7 were negative and 1 doubtful. Of 14 control experiments with bismuth subnitrate powder, complete inhibition of growth was obtained in 13, and moderate inhibition in one.

Conclusions: Since the iodine vapor itself and the secondary rays from bismuth subnitrate kill bacteria, and since the secondary rays from the oily preparations of both these substances have no inhibitory effect, it would appear that the concentration of the metals in these preparations is not sufficient under the conditions of these experiments or that the fat interferes with the effect of the secondary rays.

The practical significance of these experiments is that Lipiodol and Beck's paste cannot be used therapeutically for the production of bactericidal secondary rays; for as has been shown the secondary rays emitted from these substances, under the conditions described, do not inhibit the growth of bacteria.

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Action of Ephedrin on Intestine and Bronchi.

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Chen¹ and Kreitmair² believe that the pharmacological action of ephedrin in small doses is identical with that of adrenalin, that is, a stimulation of the sympathetic myoneural junction (commonly spoken of as nerve endings), while that of larger doses is due to direct stimulation of smooth muscle comparable to that produced by barium. Among other effects described by these investigators, are those of inhibition of the intestinal movements and relaxation of spasm of bronchial muscle. The former of these effects has been

¹ Chen, K. K., and Schmidt, C. F., *J. Pharm. Exp. Ther.*, 1924, xxiv, 339.

² Kreitmair, H., *Arch. f. Exp. Path. u. Pharmacol.*, 1927, cxx, 189.

questioned by Nagel,³ who failed to obtain any inhibition of the gut but solely a pressor effect.

Like Nagel, we have not (in over 100 experiments) obtained any evidence of a depressant action of ephedrin on the isolated rabbit gut although we have meticulously followed the methods and employed the dosage of Chen and Kreitmair. Other publications^{4, 5} have called in question the view that ephedrin produces certain of its effects by sympathicometic action. The question is not of merely theoretical interest for if ephedrin does not stimulate the sympathetic nerve endings in the gut, it is highly unlikely that it stimulates similar inhibitory nerve endings in the bronchi. As such assumed pharmacological action is the basis of the use of ephedrin as a substitute for adrenalin in the treatment of asthma, a repetition of Chen and Kreitmair's investigations appeared desirable. In a limited number of experiments conducted in this laboratory, a broncho-dilating effect of ephedrin has been observed only exceptionally. Perhaps the divergent reports of the efficacy of ephedrin in bronchial asthma may have their explanation in the fact that ephedrin relaxes bronchial spasm only under certain conditions.

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Post Operative Blood Chemical Studies.

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In a series of 50 experiments on dogs operated under ether anesthesia, various blood chemical observations were made at short intervals. The findings were as follows: 1. There is a fall in the CO₂ (van Slyke) generally not more than 10 points. 2. The blood sugar rises slightly at first followed by a moderate fall—15-20 mg. 3. There is a rise in the concentration of the blood as measured by the refractometric index. This is slight and inconstant. 4. Leucocyte, temperature, pulse and blood pressure observations show moderate changes, but in none of our cases were these marked enough to be significant *per se*.

³ Nagel, A., *Ibid.*, 1925, ex, 129.

⁴ De Eds, F., and Butt, E. M., *PROC. SOC. EXP. BIOL. AND MED.*, 1927, xxiv, 800.

⁵ Gradinesco, A., *C. R. d. Soc. Biol.*, 1927, xevi, 1027.